

INTERNATIONAL JOURNAL OF LEPROSY

OFFICIAL ORGAN OF THE INTERNATIONAL LEPROSY ASSOCIATION
PUBLISHED WITH THE AID OF THE
LEONARD WOOD MEMORIAL

Publication Office: 1832 M St., N.W., Washington 6, D.C.

VOLUME 27, NUMBER 3

JULY-SEPTEMBER 1959

EDITORIALS

Editorials are written by members of the Editorial Board, and opinions expressed are those of the writers.

X UNIDENTIFIED MYCOBACTERIA¹

Four years ago the Veterans Administration and the National Tuberculosis Association of the U.S.A. began a co-operative study of mycobacteria. They established a culture collection of unidentified mycobacteria associated with human disease and, through the co-operation of Veterans Administration hospitals throughout the country, began to survey their distribution and significance.¹ In a recent progress report, Runyon² suggested that the word 'anonymous' should be substituted for 'atypical', the adjective frequently used to describe such mycobacteria. There are, indeed, some objections to the phrase 'atypical acid-fast bacilli'. For instance, it suggests that the organisms belong to one of the named species or variants of mycobacteria, but depart in some characteristics from the hypothetical type strains. In fact, such relationship has not yet been demonstrated; though in at least one case it may exist, for Bogen³ has drawn attention to the similarity of the 'Battey' type of mycobacteria—included in Runyon's Group III of non-photochromogens—to *Mycobacterium tuberculosis* var *avis*, the similarity extending to complete resistance of both to all the

¹ Reprinted, with permission of the editor, Dr. J. R. Bignall, from *Tubercle* (London) 40 (1959) 58-59. No changes have been made except to set up the references in customary JOURNAL style, adding the titles of the papers so far possible, and running them as footnotes instead of grouped at the end.—EDITOR.

² Veterans Administration-National Tuberculosis Association co-operative study of mycobacteria. *American Rev. Tuberc.* **72** (1955) 866-868 (correspondence).

³ RUNYON, E. H. Transactions of the 17th Conference on the Chemotherapy of Tuberculosis, Veterans Administration-Armed Forces, Washington, 1958, p. 288.

⁴ BOGEN, E. *Quart. Progr. Rep. Vet. Admin.* **13** (1958) 69.

Froman bacteriophages so far tested. 'Anonymous' or 'unidentified' makes no assumption of relationships; it merely expresses our present ignorance of their position in the genus *Mycobacterium*.

Runyon reported that the culture collection had now provided material for study of about 400 strains of unidentified mycobacteria from 93 laboratories of 30 states or countries. Two classes of these organisms are apparently widespread in the United States. The photochromogens are much more common in the mid-west and the non-photochromogens in Georgia, Alabama and Florida. In other areas, anonymous mycobacteria of any kind are rarely recognized. Pulmonary disease associated with them appears to have a remarkably local distribution even within the states with a high prevalence. For instance, in suburban Cook County, on the outskirts of Chicago, three communities comprising only 16 per cent of the total population provided 63 per cent of the known cases of infection with photochromogens.⁴ In the series of 49 cases there was a preponderance of males—85 per cent (in a group of patients with pulmonary tuberculosis from the same hospital 68 per cent were men). Lewis and others,⁵ from Florida, reported 100 cases, 76 being apparently infected with non-photochromogens. There was a striking predominance of older men, an observation also made by Crow and his colleagues in Georgia.⁶

The objection to the phrase 'atypical tuberculosis', which is sometimes used, is even stronger than to naming the bacilli 'atypical'. By definition, the group of phenomena designated 'tuberculosis' is caused by infection with *Mycobacterium tuberculosis*. If there were a 'typical' picture of tuberculosis, there could be an 'atypical' one, but the causative organism would be the same species. If it is eventually shown that the 'Battey' type mycobacteria belong to the *Mycobacterium tuberculosis* var. *avis* group, infection with these bacilli could be called 'tuberculosis' with the qualification 'caused by atypical avian bacilli', just as tuberculosis may be caused by human or bovine bacilli. But to use the phrase of disease associated with any of the unidentified mycobacteria is at present misleading. Although the clinical, radiographic and histological appearance of infection with these organisms may be similar to or identical with pulmonary tuberculosis, there is some evidence that the epidemiology of the diseases may differ. It cannot be concluded that the 'unidentified' mycobacterial diseases are entirely non-infectious;

⁴ LESTER, W., BOTKIN, J. and COLTON, R. Transactions of the 17th Conference on the Chemotherapy of Tuberculosis, Veterans Administration-Armed Forces, Washington, 1958, p. 289.

⁵ LEWIS, A. G., DUNBAR, F. P., DAVIES, R. J., LASCHE, E. M., LERNER, E. N., WHARTON, D. J. and BOND, J. O. Clinical evaluation of 100 patients with chronic pulmonary disease due to or associated with atypical mycobacteria. *American Rev. Tuberc. & Pulmon. Dis.* **78** (1958) 315-(abstract).

⁶ CROW, H. E., KING, C. T., SMITH, C. E., CORPE, R. F. and STERGUS, I. A limited clinical, pathologic, and epidemiologic study of patients with pulmonary lesions associated with atypical acid-fast bacilli in the sputum. *American Rev. Tuberc. & Pulmon. Dis.* **75** (1957) 199-222.

but there is at least a suggestion that they are not as infectious as tuberculosis. Crow and others⁶ reported 69 cases from the Battey State Hospital, Georgia, 64 of the patients being apparently infected with non-photochromogenic organisms. In 63 married patients there was not a single instance of tuberculosis in the spouse. Tuberculin skin tests and chest x-rays of contacts gave frequencies of tuberculin sensitivity and pulmonary abnormalities thought to be lower than those among contacts of sputum-positive tuberculous patients; but the evidence presented is not entirely convincing. One patient excreting unidentified mycobacteria had 8 household contacts; and all had negative tuberculin tests to Old Tuberculin. In 2 of the cases reported by Nassau and Hamilton⁷ all the 6 child contacts were tuberculin negative. Furthermore, the rarity of disease associated with the 'Battey' type of non-photochromogens in the geographical regions where there is a high frequency of skin sensitization by this or allied organisms, suggests that infection by the particular mycobacterium only rarely produces clinical disease.⁸ The unidentified mycobacterial infections are more difficult to treat, the organisms being, in general, resistant to many of the drugs at present available. The unfortunate patients who continue to excrete the bacilli present a difficult problem; for to label them 'tuberculous' implies a state of chronic high infectiousness requiring stringent measures that may not, in fact, be necessary. There is also the question whether patients with unidentified mycobacterial infections can become infected with *Myco. tuberculosis* var. *hominis* and whether they should be nursed in the same rooms as tuberculous patients.

More investigation of the whole subject is required. Co-operative studies similar to those in the United States might be begun elsewhere, in order to determine the geographical distribution and importance of human disease associated with the 'anonymous' mycobacteria. The subject is to be discussed at the XVth Conference of the International Union against Tuberculosis at Istanbul in September this year.